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SCIENCE NEWS-LETTER

The Weekly Summary of Current Science

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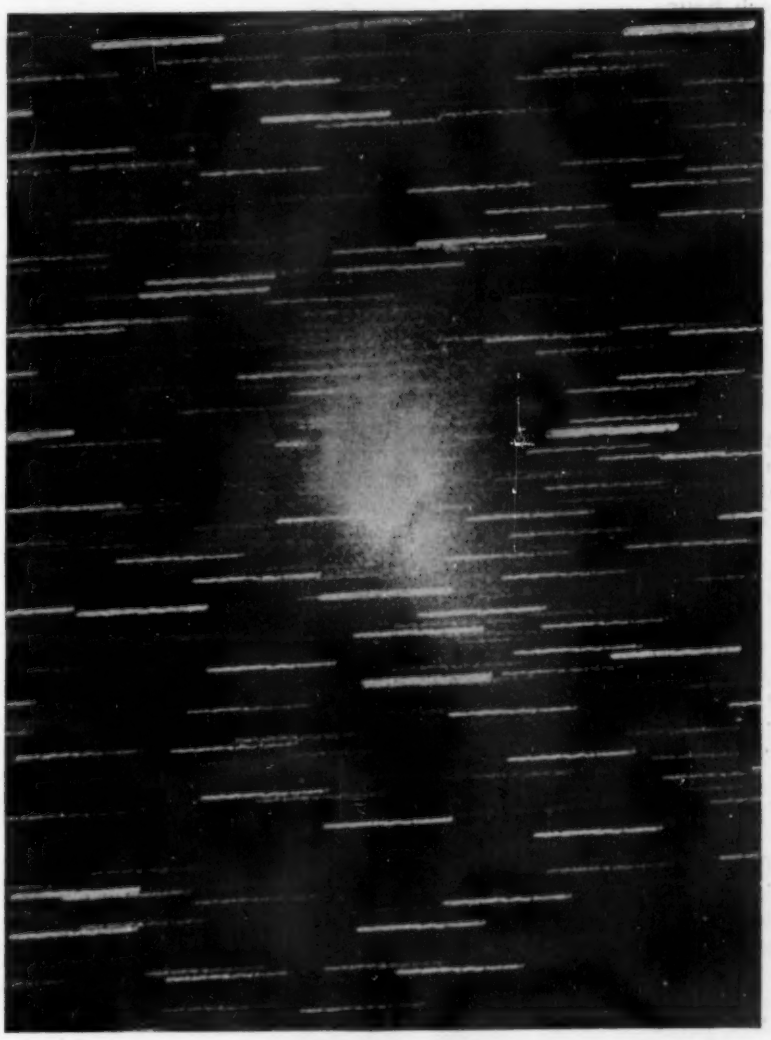

COMET 1930D

It May Cause Meteors to Shower

(See page 362)

Vol. XVII No. 478

Health Tests for Ageing Autos

Safety Engineering

EVERY state should have laws requiring a periodic inspection for all automobiles, and a certificate of their fitness before license plates are issued or renewed, was recommended in a report presented to the National Conference on Highway Safety at its recent meeting.

Stressing the need for a periodic health examination for cars, the report states that in the course of special investigations defective brakes were found in about one car out of four. Defective lights were found in from 13 to 25 per cent. of the cars. Steering gears, horns, windshield wipers and other accessories which figure in driving safety were found to be out of order in other cars.

Since so many individuals will not keep their cars fit, the report recommends that every state should have an adequate highway patrol force whose members are trained to recognize the symptoms of mechanical defects. The patrol should inform motorists whose cars are defective and impress on them the need for prompt repair, and cars in really hazardous state should be withdrawn from the highway forthwith, the report states.

AUTHORITIES on safety are finding out what to do to curb the increasing number of deaths from automobile accidents by scientifically analyzing accident statistics.

Effective steps toward meeting the problem must be based on statistics comparable in nature and generally similar in classification and grouping, says Dr. Julius H. Parmelee, director of the U. S. Bureau of Railway Economics. Dr. Parmelee directed the gathering of detailed statistics on the 31,000 fatalities resulting from automobile accidents in the United States last year.

As chairman of the Committee on Traffic Accident Statistics of the National Conference on Street and Highway Safety he has just made a report. He said:

"Many things are to be learned of the congestion and accident problem through such statistics. There is the factor of road and lighting conditions; the type and condition of the car; the element of age, experience and physical condition of the driver; and the primary cause of the accident."

The most important figures from Dr. Parmelee's report were given the conference by Secretary of Commerce Robert P. Lamont, its chairman. Secretary Lamont pointed out that motor vehicle fatalities in the United States have increased from 12,500 in 1920 to 22,000 in 1925, 28,000 in 1928, and 31,000 in 1929. The annual losses now approach our total casualties on the fields of battle in the Great War, he said.

"Analyzing these figures by comparison with the number of automobiles registered we find another fact that is cause of great concern," continued Secretary Lamont. "In 1920, for every 100,000 automobiles in use, motor accidents caused 136 deaths. By 1925 this ratio had been brought down to 110 and in 1926 to 107. Since 1926, however, the ratio has reversed its trend and has constantly mounted. Last year it reached 117."

Secretary Lamont found encouraging signs in the comparatively small increase in the number of railway grade crossing accidents compared with the enormous increase of automobiles registered, and in the relative improvement in the fatality record among children. He also pointed out the facts that states with strong centralized state motor vehicle administration, including drivers' license systems with mandatory examination, had the best accident records and that 15 of the large cities of the country, including Chicago, showed great improvement.

AN economical and practical method of saving the lives of many of the 31,000 people killed in the United States every year by motor vehicle accidents is to provide highway sidewalks. A well-graded concrete walk is desirable but not necessary. The urgent need is for a usable path along the right-of-way of the road far enough from automobile traffic to make walking safe.

Difficulty in building such walks is foreseen by the American Society for Municipal Improvements, which brought their need to the attention of the conference. An investigation made by the society shows that the laws of practically all states make no provision for constructing the walks at state expense.

West Virginia is the exception; its laws permit state expense for sidewalk construction wherever the safety of the public demands it. Illinois and New Hampshire can use state money for grading the walks only, several more states can build walks on bridges and through congested districts, while many permit counties and towns to build walks on state right-of-ways. Massachusetts and Westchester county, N. Y., are already taking steps to provide walks.

Of the 31,000 people killed in 1929, 65 per cent. were pedestrians, it is reported. Many of these were struck while walking along highways, especially at night. In addition to the actual saving of life which highway sidewalks would effect, the pleasure and right of walking beside roads once used entirely by pedestrians would be returned to them, the report declared.

Science News-Letter, June 7, 1930

The Answer Is

In This Issue

What proportion of auto *fatalities* are *pedestrians?* p. 354—Why are *thoroughbreds* outwitted by *mutts?* p. 355—How long ago were *dogs* used as *hunters?* p. 356—How do *mammalogists* view *"Ingagi?"* p. 357—How does *Pluto* differ from other *outer* planets? p. 360—What star is *"triplets?"* p. 361—What is *maizolith?* p. 361—How is *typhoid* spread? p. 364—What new *evidence* of the antiquity of man has been found? p. 365.

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Beaucoup

The Little Mutt Dog Finds His Defender

Genetics

By George H. Eckhardt

LITTLE Beaucoup was never handsome, but she was cunning, and the good people of Roanoke, Virginia, some thirty years back, gave her an affectionate pat as she passed, and thought little more of her. Now and then some kind housewife gave her a plate of scraps, little dreaming that she was entertaining a future stage star.

Life was a rather bitter experience for little Beaucoup. She knew nothing of her ancestors, and her features gave no clue. She had aspirations, however. As for many others of her sex, the footlights were her goal, and like the good trouper she proved herself, nothing could stand between her and the stage.

But things looked very gloomy until one spring morning the Chautauqua tents arose in Roanoke, and the gay wagons of Pamahasika's Society Circus rolled into town. Here was opportunity, and Beaucoup grasped it. Early that morning she came to the tents, and stayed there with the tenacity of an old stager. Nothing could drive her away.

Finally she attracted the attention of genial George Roberts. He was Professor Pamahasika when he donned the red breeches and gold embroidered coat, but the kindly George Roberts when he worked about his little four-legged charges. Being hungry she was fed, and being smart she was taken with the circus when it left town.

Beaucoup, that cunning little puppy, became the mother of a long line of canine stage stars, and for nearly thirty years her sons and daughters and grandchildren have delighted tens of thousands of youngsters. Truly she founded a royal family when romance came into her life and she espoused Grant Murphy, then a dashing veteran of two seasons. The stage has had its Barrymores and its other families dedicated to the footlights, but in no greater degree did these actors consecrate their families to the stage than did little Beaucoup and Grant Murphy.

From the tents of a dog and pony circus to the solemn lecture halls of a great university may seem a long step; but the work of George Roberts, dog trainer of over fifty years' experience, has been closely watched and studied by Dr. William Lentz, director of the Small Animal Hospital of the Veterinary Hospital of the University of Pennsylvania, and recognized throughout the world for his work on dogs. With a keen affection for his work, and for the little charges entrusted to him, Dr. Lentz makes the sweeping statement that physical characteristics for which dog fanciers strive do nothing towards fostering intelligence, and that the really brilliant dogs are those like little Beaucoup, not what he calls the "in-bred, man-made freaks" of the show bench.

From his observations of Beaucoup and animals like her, Dr. Lentz states that if the same care were exercised in breeding dogs for intelligence as is expended on arriving at some fancied physical characteristic, a race of super-dogs would soon result.

Gustave Michaud, in France, conceived the idea of breeding dogs for their mental powers, rather than for appearance. Although unable to complete his work, Michaud obtained startling results, and he convinced Dr. Lentz that it would be easily possible to bring about a race of dogs that could be taught to talk. Of course the dog could never be taught to articulate, or pronounce words, but he could be taught a sign language such as is used by deaf and dumb humans. To obtain the best results from these experiments, the work would necessarily have to cover the lifetime of more than one man. Michaud's scheme was to breed intelligent dogs, regardless of kind. Whenever he heard of a paricularly smart little dog on the stage, or in a home, he endeavored to bring it into his family of canine Einsteins.

Man has been as fickle and whimsical in fashions among dogs as he has been in clothes and other everyday things. Today the so-called police dog enjoys a world wide vogue, but from the earliest recorded times fashions have changed to suit man's whims. Little attention has ever been paid to the mental attributes of the dog, but great thought has always been given to the length of legs, shape of head, and other physical characteristics.

Drawings found in old Egyptian tombs of the (*Turn to next page*)

Fourth Dynasty, dated about 3500 B. C., show dogs evidently used as hunters. They were animals like greyhounds with long legs. In tombs of the Twelfth Dynasty dated about 2266 B. C., appear the first drawings of a different type of dog, a short-legged animal of the dachshund type. These dogs were evidently bred from monstrosities and freaks of the long-legged dog breeds, to satisfy the whims of some monarch.

Physical monstrosities in dogs have ever been fostered to supply demands. Specimens have resulted from the accidental or intentional crossing of breeds. The owner has been able to sell the odd dogs, thus a new breed is established. The Boston terrier resulted from the crossing of the English bulldog and the English terrier. Being a good looking little dog, he sprang into popularity.

Unfortunately, Dr. Lentz states, there has never been a commercial demand for dogs with outstanding intelligence. The St. Bernards of the Alps would seem an exception to this statement, but their work has been more a matter of instinct than definite intelligence. About the only real commercial demand for highly intelligent canines has come from the stage, and the stage has paid little or no attention to breed.

Dr. Lentz argues that if, for instance, there was need for dogs to act as copy boys in newspaper offices, to rush about from desk to desk, it is only fair to assume that dogs particularly successful in this field would be interbred until a very efficient "copy boy terrier" would result. But there is now no need for such a dog, hence fanciers pay no attention to him. This—as in the case of the canine thespians—would be a case where intelligence alone would count.

No breed has ever enjoyed the popularity of the German shepherd, commonly known as the police dog, and great claims are made for its intelligence. A little over thirty years back, about the same time that Beaucoup joined the circus, a few fanciers of the German sheep dog met in Munich and organized a small group of enthusiasts for the breed, that has grown to a membership of over 35,000 in Germany alone, in which country over 375,000 of these dogs have been registered. Single dogs have sold for sums as high as $25,000, and $5,000 is by no means an unusual price.

Despite its immense popularity, Dr. Lentz uses this particular breed to further his argument against raising dogs for physical characteristics alone. He points out that the European ancestor of this dog was a utilitarian animal, heavy and well-set, and expected to perform farm duties; while the American dog has been "ennobled" by its fanciers, especially toward the lengthening and narrowing of the head.

In this respect in particular the fanciers have done the dog a great injustice, since they have narrowed the brain chamber, making impossible the development of the folds of the brain, the very thing that would make the animal more and more intelligent.

The greyhound is a very old and pure breed, dating back many centuries, but he is a stupid dog, due to the narrowness of his head. Yet fanciers point to the narrow head in this dog as a mark of distinction, just as the narrowing of the head of the German shepherd in America is looked upon with pride.

Claims of great intelligence have been made for the German shepherd, especially upon the screen and in some cases in college tests. Strongheart endeared himself to thousands of movie fans, and started a great vogue for canine sheiks on the silver sheet. The dog Fellow performed some startling intelligence tests. Before making further claims for the German shepherd dog, or any other particular breed, it might be well to observe the statement of Dr. Herbert Fox, director of the research laboratory of the Zoological Society of Philadelphia. He states that intelligence in animals, as in men, is a matter of individuals, not of races or breeds.

In the first place, in a breed as numerous as the German shepherd, there would naturally appear some highly intelligent animals, "throwbacks" to the parent animals of the breed. The dog Fellow was probably of this type, and his case proves nothing for the breed as a whole.

The cinema is hardly a fair test for either the intelligence of dog or man. Scenes are taken and retaken until the desired effect is obtained. The tributes to the canine stars of the movies should be directed towards the directors and camera men, for their patience, rather than to the animals themselves.

Dr. Lentz has had hundreds of dogs brought to him for intelligence tests, and he has closely followed the work along these lines in other universities.

He states that there is a marked difference between mere training and intelligence, or reasoning power. Dogs, by their (*Turn to page* 367)

Group of Beaucoup's grandchildren—troupers all.

Classic Building For Industrial Research

General Science

CLASSICAL in architecture and faced with massive columns is the new home being planned for the Mellon Institute of Industrial Research in Pittsburgh.

When the present home of the Institute was completed, in 1915, it was felt that the industrial fellowship procedure created by Robert Kennedy Duncan had passed from the experimental to the practical stage. The building, which was given to the institution by Andrew W. and Richard B. Mellon, incorporated the best laboratory constructional features of that period. It was thought then that it would provide adequate space for growth for many years but for practically 10 years the institute has had a waiting list of companies. A second building, on the site of which the new edifice will rise, was acquired in 1927, and gave temporary relief.

The new building will provide a greatly increased number of laboratories and give more commodious quarters for the general departments. The present library contains 11,000 volumes; the new library is planned to accommodate 250,000 volumes. Research in pure chemistry will be expanded. More elaborate chemical engineering laboratories are to be available in the new building. Certain rooms will be especially equipped for research on electrochemistry, spectrosopy, low temperature, radiations and high pressure. Other special features to be included are a large lecture hall, a dining hall, an industrial fellowship museum, and an underground garage.

Proposed Building of Mellon Institute of Industrial Research

The Ionic laboratory structure will be seven stories high, approximately 300 feet by 400 feet, with monolithic columns along all four sides. The main entrance, which is located on the third floor, is reached by steps extending along the entire front of the building. The laboratories are to face on interior courts. Additional laboratory suites can be constructed in the interior courts without marring the beauty of the general appearance and without interfering in any way with the original laboratory units.

Science News-Letter, June 7, 1930

Mammalogists Disapprove "Ingagi"

Natural History

A PROTEST against the film "Ingagi" widely shown throughout the country was made by the American Society of Mammalogists at its recent meeting, and was announced by Dr. William K. Gregory of the American Museum of Natural History.

The formal resolution adopted read: "That in accordance with the facts brought out in the discussion of the film 'Ingagi,' which has been viewed by many of our members, the American Society of Mammalogists hereby expresses its utter disapproval of this film, which grossly misrepresents the natural history of Africa, while pretending to be a truthful record of a scientific expedition."

A statement issued on behalf of the society further stated:

"The American public should understand that certain animals shown in the film have never been found in the wild state in Africa. Also that a man made up as a gorilla is represented as carrying off a native woman. In response to many protests and letters, certain members of the American Society of Mammalogists who have done field work in Africa have viewed the film and are unanimous in deploring its numerous fictitious features which are misleadingly mingled with genuine natural history records."

The American Society of Mammalogists is the leading organization of specialists on mammals of which great group of animals man and the higher apes are the most advanced members. The resolution on "Ingagi" was sponsored by Dr. Gregory, Harold J. Coolidge, Jr., assistant curator of mammals, Museum of Comparative Zoology at Harvard College; H. E. Anthony, curator of mammals, American Museum of Natural History; and James L. Clark, in charge of taxidermy and animal restoration at American Museum of Natural History.

The British Embassy stated in response to an inquiry that there is no Englishman by the name of Sir Hubert Winstead. This is the name of the person credited in the film "Ingagi" with leading the African expedition claimed to be described in the film. Information from official British sources was requested after scientists had condemned the motion picture on the grounds of inaccuracy and misrepresentation of scientific facts.

Science News-Letter, June 7, 1930

Glauber's Salt: $Na_2SO_4.10\ H_2O$ — A Classic of Science

Chemistry

THE WORKS OF THE HIGHLY EXPERIENCED AND FAMOUS CHYMIST, JOHN RUDOLPH GLAUBER: Containing great variety of choice secrets in Medicine and Alchymy, in the working of Metallick Mines, and the separation of Metals: also various cheap and easie ways of making Salt-petre, and improving of Barren-land, and the Fruits of the Earth. Together with many other things very profitable for all the Lovers of Art and Industry. Translated into English, and Published for Publick Good by the Labour, Care, and Charge, of Christopher Packe, Philo-chymico-Medicus. London, MDCLXXXIX (1689).

Glauber's directions for preparing his salt are perfectly valid today. The initial R is of course the familiar symbol which still begins prescriptions. A is sulphuric acid—oil of vitriol, if Glauber had written it out. Fire of sand is our sand bath. In describing his preparation, Glauber gives us an interesting medley of properties, some of sodium sulphate alone, some of salts in general, phenomena of solution, of crystallization, and of colloid reactions. Most of them are recognizable, but it must be admitted that the author occasionally draws a long bow in his enthusiasm for his discovery.

A most easie Way of acquiring Spirit of Salt together with the Sal Mirabile.

R. of common salt two parts, dissolve it in a sufficient quantity of common water; pour *A.* upon the solution; put the mixture into a glass Body, or a glass Retort well coated, or else into an earthen Body or Retort. If a Body, set on an Head, and begin to destil with Fire of sand, encreasing your Fire gradually; with the first heat comes off the unsavoury Phlegm, which gather apart; when the Liquor comes forth sowrish, change your Receiver and receive the sowre spirit: Continue the operation till no more spirits will arise, then let out the Fire, and permit the Vessel to stand in sand till all is cooled, when cold, take it out, and if it be unbroke, fill it again with the aforesaid matter, and proceed as we taught: The phlegm is not to be cast away, but must be kept, that in it may be dissolved Salt (because it is better than common Water) for another destillation. Thus from every pound of salt you will have lb. j. of the best and most pure spirit. Dissolve the salt remaining in the Body or Retort (if neither be broke) in Water, filter and evaporate the Water, let it crystallize, the Crystals will be white, endowed with wonderful Virtues, to be declared here following. . .

Of the Utility which our Salt of Art contributes unto all Men, of what state or condition soever they be.

THE utility of this is very great, for if seeds, before they be sowed, be steeped in it, they will yield an incredible encrease; which is a thing of very great concern to all men dwelling on the Earth, because they shall never sustain the want of Bread.

And will not the Husband-man, gathering in his Fruits for less labour and charge than in the vulgar manner, be able the more certainly to pay his Dues to the Magistrate?

Of Artificers also the Reason is the same; because they being hereby better able to exercise their Crafts, may also return the benefits thereof to their superiors.

Unto Physicians, by the help of this, are known more excellent Medicaments, and they being present, more speedy and certain relief is procured to the sick.

So it is with Apothecaries, Chirurgions, and their Medicines, Plasters, and Unguents, which by this are more perfectly prepared, and therefore the Cure is sooner, and more happily absolved, than by Medicines vulgarly known.

And I believe every Artificer and Trading Man, when he can perform his Work with less labour and charge, and acquire his Wares for less trouble and cost, will sell his Commodities to his Neighbors, at a cheaper rate that he could before he found the benefit of this salt.

Husbandmen and Gardeners, and other such labouring men, when they can more easily, sooner, and more abundantly reap their Fruits than before, cannot chuse but sell to the buyers for less price than they could afford them at when they had no benefit of this.

Thus we generally see, of how great Utility our *Salt of Art* is, or what benefits may thence redound to men of every condition. What man, considering these things, will not imploy all his faculties that he may become the Master of such a salt, whence he may not only benefit himself, but his Neighbor also?

Of the Use of this Sal Mirabile in Medicine

THIS salt ought to be numbred among Universal Purgers, for by a Magnetick Virtue it extracts all sorts of noxious humours out of the Body.

2. This purging Property is augmented by Metallick or Mineral Bodies dissolved in it.

3. For expelling all depraved humours, the most profitable to be dissolved in it, is Antimony; when the Medicine is to be appropriated to the Heart, Gold; when to the Brain, Silver; to the Liver, Spleen, and Reins, Iron; to the Lungs, Tin and Sulphur; to the Habit of the Body, Copper and Mercury.

4. If purging Vegetables, Minerals, and Animals be boiled in the Water in which this salt is dissolved, and that decoction be used in a Clyster, we know all corrupt humours will be evacuated thereby.

5. In all those Persons, young or old, which cannot or will not take purging Medicaments, either by the mouth or otherwise, it will be very profitable to free their bodies from corrupt humours, to make suppositories of Honey and this salt mixed.

6. In *Head-achs,* all *Fevers,* and the *Epilepse,* it will deserve the praises of a suitable Purger.

7. In Catarrhs, when the Head is full of Phlegmatick Humours, half a grane, or a whole grane of this snuffed up the Nostrils early in the morning, or in the day-time, wonderfully evacuates the Phlegm.

8. It is an admirable Remedy in Affects of the Jaws, and parts adjacent, as the Tongue, Tonsils, Cheeks,

and Gums, having their original from a sharp Catarrh falling down, and oftentimes conjoined with Ulceration and Corruption, as is frequently known to happen in Scorbutick Diseases. For it extracts the humours causing the *Evil,* and heals the part vitiated, if it (dissolved in Water) be often used hot as a *Gargarism,* and the use of Purging not neglected.

9. In like manner in the *Tooth-ach* it performs Wonders, drawing out the Humours causing dolour in the Teeth; if as much as will lie on the point of a knife, be applied, tied up in a fine Cloth, to the aking Tooth, yet after the use of some gentle Purgation.

10. It is a famous Medicine in Affects of the Eyes and Ears, drawing their Original from a *Catarrh,* provided the use of some Purging Medicine be not neglected.

11. This salt is egregiously useful, and especially after Metallick Bodies have been dissolved in it, against green Wounds of the Body and old Fistula's.

12. If it be mixed with a due quantity of common Water, and thence a Bath be made, it admirably clears away the *Scab* and like Affects of the skin, better than natural Baths themselves; for by its famous power of attracting depraved Humours, lying between the skin and flesh, and producing such Affects, it heals and extracts the same, especially if that power be helped by some other Medicine.

13. It extracts Humours of every kind, sharp, gnawing, or which are most firmly inherent in the external parts, or which often produce Vermin like Lice, and cannot be removed by Baths or Unguents.

14. This used internally and externally (*viz.* in a Bath), extracts the Water out of Dropsical persons; and this it effects so much the more powerfully if Gold be dissolved in it.

15. It is a famous Medicine for removing Dolours of the Gout, or diminishing the same.

16. Inwardly given, it is conducent against bloody Fluxes of every kind.

17. Also externally applied, it wonderfully stops Blood in Wounds, especially if after it is calcined and reduced to Powder, it be mixed with Cobwebs or Peacocks Dung, or which is better, when Steel hath been dissolved in it.

18. It kills and expels all Worms.

19. In *Fractures of Bones,* and in *Ruptures,* it is a most excellent Medicament.

20. It, dissolved in Water, and put upon the body, not only preserves Insects from Corruption, but also greater Animals, and Man; yet it may be used in a more dry form.

21. It is an excellent Conditure not only of Animals but also of Plants and Flowers.

22. It preserves bodies dissected from rottenness, stink, and dryness; contrary to what we have observed Turpentine, Spirit of Wine, Aloes and Myrrh to do; yea, from decay, as we have seen done in Salt-water.

23. It of Gold produceth an excelent *Elixir,* in a few daies, some granes of which used either liquid or dry, most gently expels depraved Humours by Urine, Sweat, and Seidge. Such a Universal *Arcanum* was never before this time known to Mortals; we liberally give it, for the Honour of GOD, and Health of our Neighbour.

24. It so prepareth Gold, as by the help of Alcolizate spirit of Wine, it passeth the Alembick of a golden colour, and is a famous Medicament.

25. Also by the help of that (although after another manner) a blue Tincture may be extracted from Gold, of excellent use in Medicine and Alchymy.

26. It is able to impress the nature of Vegetables on all Metals; so as Metals this way prepared, and added to the Roots of Herbs, impart to those Herbs the nature of the Metal applied. How famous the use of such Metallick Medicines will be in Medicine, it is easie to understand.

Of the Utilities of the Salt of Art, in various Arts

IT suddenly coagulates River-Water, Rain-Water, or any destilled Water, so as it becomes Ice, and may be carried in Paper, a Sack, or Wooden-Box or Chest, wheresoever you will, and be dissolved when need is, so as the salt may be separated from the Water; which salt is not at all changed by the Water, but may oftentimes again be used for like Coagulations.

2. After the same manner Wine, Vinegar, Beer, Metheglin, and like Drinks, may be reduced by coagulation into a clear substance, and again be most easily dissolved.

3. Also by help of that may be coagulated saline spirits, as, *Aqua-fortis, Aqua-regia,* spirit of Salt, spirit or oil of Vitriol, and the like, so as they will become hard salts, without any change or corruption, portable in Paper or Wooden Boxes, to other places, where being dissolved when need is, they exhibit a Liquor distinct from the salt, the salt in the mean while keeping its coagulating Virtues intire.

4. To Honey and Syrup it gives the consistency of sugar.

5. Fountains may be so stopped with it, as their flowing to be stayed.

6. It changeth wood in process of time into a most hard stone.

7. It abstracts the superfluous Phlegm from Wine, Beer, Vinegar, and spirit of Wine, its ungrateful taste or odour, and unto them also gives greater clearness.

10. Also it corrects the unsavory smell of Vessels, so as we may commodiously use them.

11. It preserves for a long time all Fruits, as Cherries, Apples, Pears, Grapes, Garlick, yea, Hens-Eggs, and whatsoever may be changed by the air, and otherwise would be corrupted.

12. Unto *Painters* it may be a Basis for their *Colours.*

13. The seeds of Vegetables moistened in it, are wonderfully multiplied, so as from one only grane 10, 20, or 30 ears will arise: And the same will be effected, if the salt itself be committed to the earth.

14. It causeth the Earth long to keep the Rain-Waters it receiveth. Hence must necessarily arise great profit to the Fruits.

15. This applied to the Roots of Trees, recovers them, though almost dead before, and makes them fruitful.

16. Yea, Animals suffocated or drowned in Waters, as Dogs, Cats, Mice, and Insects, by help of it may again be restored to life.

17. It attracts the breathings of many men lying together in one Chamber, and coagulates the same as snow or ice; not indeed by any reall co-touching, but being included in some Glass, and hung up by a Thread. Even so, in a Magnetick manner have we observed such breath or vapour to adhere to the outside of Glass like true Ice. But this is a Winter operation.

18. Flowers and odoriferous Herbs, by addition of this, may be preserved without change of odour, taste, or colour.

19. By the benefit of this salt, various colours and very many odoriferous species may be prepared; whence the Roots of Plants, if they be applied to them, attract the colour or odour, which they communicate to the Herbs themselves.

Pluto's Color

THE color of the new planet Pluto, as Planet X has been been christened by its discoverers at Lowell Observatory, is totally unlike that of the other outer planets but resembles the inner ones, Roger Lowell Putnam, trustee of the Lowell Observatory and nephew of the late Prof. Percival Lowell, founder of the observatory, announced to Science Service.

Mars at the immense distance of Pluto would be no brighter than the new planet, Mr. Putnam declared. If it is assumed that Pluto reflects the same proportion of the sun's light as the moon or the innermost planet Mercury, then computations show that Pluto would be larger than the planet Mars which itself is not much smaller than the earth.

Only premature publication of an unauthorized story caused the Lowell Observatory authorities to announce their naming of the new planet before communicating with the American Astronomical Society or the Royal Astronomical Society.

"It is too soon to draw definite conclusions on the new planet," Mr. Putnam said, "but the fact remains it was discovered substantially in the place predicted by Prof. Lowell and its discovery was wholly due to the work started by him."

Astronomy

Science News-Letter, June 7, 1930

Waste is Best

"IF you want your dog to reach a ripe old age," say twenty years, do not feed him the choice cuts of meat; feed him the internal organs, the parts generally thrown away," says Dr. William Lentz, director of the Small Animal Hospital of the University of Pennsylvania. Checking up on research on longevity in dogs, Dr. Lentz has found that among a number of dogs which reached the age of twenty years or more, the great majority had access to the waste material cast out by butchers and abbattoirs, this waste consisting of the softer internal organs, and not the firm muscular portions of the meat.

The dog, being carnivorous when left to himself, follows the instincts of his wild brothers; and observation has shown that beasts of prey do not devour the muscular portions of the animals which they bring down,but rather rip the carcass open and eat the inner organs. Dr. Lentz points out that man has sought to adapt the dog's diet to his own, much to the detriment of the dog. It appears that carnivorous animals derive certain benefits from the softer diet, possibly from vitamins contained in the glandular organs.

Dr. Herbert Fox, director of the Pathological Laboratory of the Philadelphia Zoological Society, and author of an outstanding work on diseases of wild animals in captivity, has found that the diet of muscular meat, ordinarily fed to lions and other carnivora in captivity, is not nearly as beneficial to them as a diet of softer meat, more nearly approximating the lion's choice in his wild state. Considerable study is being given this subject by Dr. Fox, who is also director of the Pepper Pathological Institute of the University of Pennsylvania.

Animal Husbandry

Science News-Letter, June 7, 1930

Booze for Moths

ORCHARDISTS are now putting up moth traps in the tops of the apple trees in the orchards of the Pacific Northwest. These traps are vessels filled with hard cider, fermented malt syrup or a similar liquor which by its odor attracts many kinds of moths.

The orchardist puts these traps up for the codling moth, whose larva eats its way into the apple. The grower must know these moths from others, for the traps are not put up with the intention of destroying any appreciable quantity of them, but to let the orchardist know when they appear. When a number of these moths are found in the liquid the orchardist begins his spraying for the pests.

Entomology

Science News-Letter, June 7, 1930

New Berry

A NEW berry has appeared at Portland, Ore., that may be of considerable value to the growers of northwestern United States. Seemingly it was only a wild black raspberry. Marshall Morris found it in the woods near his home and a large bush furnished him berries for one summer during a very dry period. It did better than his cultivated berries, so he secured some of the canes for his home place.

This year the old canes did not die down in winter but branched out, and are now filled with green fruit. Last fall he picked berries from these same canes in October.

An examination of the vines suggests that this variety may be a hybrid of the black raspberry with some species of blackberry. Its leaves and growing habits are much the same as some of the blackberries but the fruits are raspberries.

The value of the new variety will be in its heavy bearing, its long bearing season and its resistance to dry weather. The berries will be shown to experts this year to get their opinion as to whether they are suitable for a commercial shipping or canning berry.

Horticulture

Science News-Letter, June 7, 1930

IN VARIOUS CI

Drifting Mexicans

BY checking up on the money orders sent back home by Mexicans in the United States, a Mexican scientist has cleverly gathered some new facts about border immigration. Figures on Mexicans who enter this country, particularly those who come temporarily for picking fruit, thinning beets, or other seasonal employment, are confusing and contradictory. Thousands of these workers ford the Rio Grande in order to avoid paying the United States an eighteen-dollar visa and head tax, which they do not happen to have. When they return, they register boldly and officially at the Mexican office, for there is no reason to do otherwise.

Records of the national Mexican post office, made available to Dr. Manuel Gamio, one of Mexico's leading scientists, have shown that about $5,000,000 is sent into Mexico each year by postal orders from Mexicans in the United States. The records indicate that the northern plateau of Mexico, and to a lesser extent the central plateau, are supplying the greatest number of Mexican workers to the states. Seasonal fluctuations in the postal orders sent from different states bear out the belief that a large proportion of the Mexicans who cross the border do so to engage in seasonal work and return home when idle.

The Mexican who comes to work and live in the United States does not assimilate into American civilization, Dr. Gamio declares, in explaining his view that it would be for the good of both countries to restrict permanent immigration from Mexico.

Sociology

Science News-Letter, June 7, 1930

SCIENCE FIELDS

Historic Pipes

CLAY pipes by the hundreds, flipped over the walls of famous Mont Orgueil Castle in the little old island of Jersey during the 300 years since Sir Walter Raleigh was governor there, are being unearthed in ancient deposits of debris and classified by Major N. V. L. Rybot, archaeologist of the Société Jersiaise as an astonishingly faithful index to the history of the castle and the island as well.

In addition to being dated, many of the pipes bear ornamental devices. Among the specimens from the more recent deposits is one depicting a proud Admiral Nelson receiving a wreath in homage from Britannia and another clay bowl showing the face of Queen Victoria, a souvenir of her visit to the stronghold in 1846.

Where dates and commemorative devices are lacking, the pipe's place in history is established by its own design and structure. Very early relics, preserved from the 17th century in a dust bin directly below the ancient kitchen of the governor's palace, are small, gracefully curved and shell-like. The long fragile stems, of course, were snapped off long ago but the bowls are perfectly preserved.

Proceeding from the pattern of pipe which Sir Walter introduced there in 1600 when he came as governor, the bowls grow heavier, the stems coarser and the angle at which the bowl joins the stem decreases notably. Coming to the modern collection, the design becomes that of the present-day Irishman's stumpy favorite. The Victorian epoch stands out in the collection by reason of the great number of souvenir pipes, many of them showing ingenious and complex modeling, in contrast with the simple but attractive craftsmanship of their forerunners.

As the excavation of the dust bin was carried down from recent to more and more remote levels the yield of the midden or rubbish heap increased tremendousiy in scientific interest. From the shells, bones and bric-a-brac of all sorts the researchers gleaned intimate information on the habits of the representative population who used to live in the old castle. Ascribing definite dates to this wealth of material, however, would have been a poser had it not been for the pipes, numbers of which were found on every horizon and are still being discovered. With the vital contribution of the old clay comforters, an unbroken sequence, telling the whole story of life of Mont Orgueil, is rapidly being pieced together by the Société Jersiaise.

Archæology

Science News-Letter, June 7, 1930

Three in One

THREE stars whirl where the unaided eye sees only one spot of light in the sky, Prof. F. C. Henroteau of the Dominion Observatory at Ottawa has discovered as a result of studies of Eta Virginis, a star of medium brightness in the constellation of Virgo. Heretofore this star has been considered a double, with one dark invisible star moving about the one that can be seen. Now Prof. Henroteau from his observations is able to deduce that there must be a third dark massive body in the stellar system and that the star is really triplets.

Astronomy

Science News-Letter, June 7, 1930

Sick Mosquitoes

THE possibility of mosquitoes giving a disease to other mosquitoes, just as they give it to man, has been demonstrated by Major Joe H. St. John and Major James Stevens Simmons, both of the U. S. Army Medical Corps, and Captain Francois H. K. Reynolds of the Veterinary Corps, working at the Army medical department research board bureau of science in Manila.

The disease of the experiment was dengue fever, which is transmitted from man to man by mosquitoes. In the experiment, mosquitoes were allowed to feed, through guinea pig skin, on the macerated bodies of other mosquitoes which had been infected with the virus of dengue fever. Just to prove that the second group of mosquitoes had actually picked up the virus, two American soldiers allowed themselves to be bitten by them. They both had typical attacks of the disease.

The experiment is important to science because it showed that the virus could be transmitted from one insect to another without passing through a vertebrate host, such as man. This may lead to more complete knowledge of the life history of this and other viruses. Also it will now probably be much easier to keep strains of the dengue fever virus alive in the laboratory.

Medicine—Entomology

Science News-Letter, June 7, 1930

Corncob Stone

MAIZOLITH, a substance hard as stone and stronger than most kinds of wood, is one of the newest products of chemical magic working on cornfield wastes. It can be made from any part of the corn plant, but most advantageously from corncobs. It is one of the things that has been made by the chemists of Iowa State College at Ames, and has recently been undergoing tests on a semi-commercial scale at the U. S. Bureau of Standards.

It is prepared by chemically digesting the corncobs, reducing them to a uniform jellylike pulp in certain standard paper-mill machinery, and pressing the jelly in a mould. The resulting solid material is a dense, hard, bonelike substance, ranging in color from a golden tan to a deep ebony. It is somewhat stronger than the hardwoods, and is a good electrical insulator. It can be machined and polished into non-metallic gears, washers, panels and other objects such as are now made from hard rubber and bakelite.

It is estimated that a commercial plant with a production capacity of five tons per day could manufacture it at a cost of about $240 a ton. The cost might be cut if it is manufactured as a by-product in other cornstalk industries.

Its trade name, maizolith, englishes into "corn-stone."

Chemistry

Science News-Letter, June 7, 1930

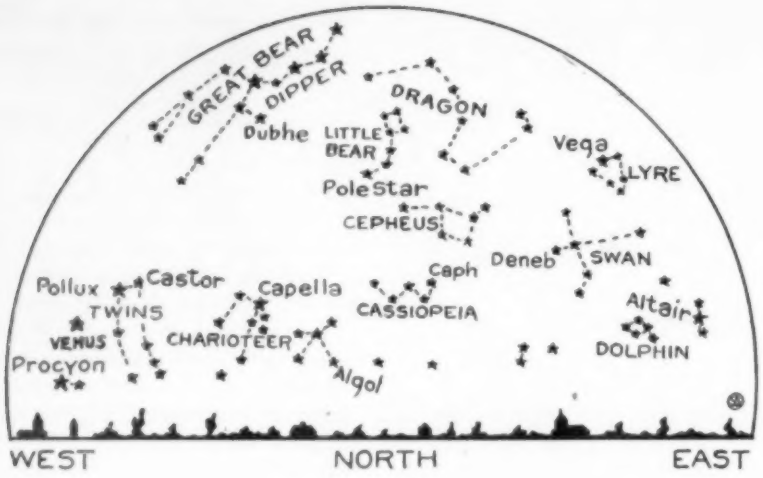
Scientific Statuary

COMMISSIONED to make upwards of 200 sculptured figures, busts and face casts of all the principal types of human beings for the Field Museum of Natural History, Miss Malvina Hoffman of New York has sailed for Europe, where she will receive the cooperation of anthropologists of many nations in her work. After she has studied and modeled various types of Europeans, she will probably make other trips to the Orient and the tropics to find new models for her scientific sculpturing.

Miss Hoffman was a pupil of Auguste Rodin, Herbert Adams and Gutzon Borglum.

Anthropology

Science News-Letter, June 7, 1930



Here is a picture of the sky these June evenings. Just hold the maps before you like a picture. Face north when using the view of the northern sky and face south when viewing the southern sky.

Comet May Cause Meteoric Display

Astronomy

IF you watch the sky during the nights of early June you may be treated to an unusual display of meteors or "shooting stars."

For comet 1930d, as the astronomers call the new visitor to the heavens discovered by the Germans, Schwassmann and Wachmann, is expected to cause a meteoric display about June 9, radiating from the region of the sky slightly west of the constellation of Hercules and above the Northern Crown. This is the prediction of the Japanese astronomer, Prof. Issei Yamamoto of Kyoto, Japan, and American astronomers are urging all interested to keep a sharp lookout for an unusual number of meteors.

Astronomers explain that there is no certainty that meteors will be seen as the earth passes near the comet's orbit but a chance of seeing a good display is not one that should be missed. Careful watch should be begun about June 1 and continued until about June 11, with especial diligence of observation on the nights June 8, 9 and 10.

At any time on a clear night shooting stars may be seen here and there in the sky at intervals of several minutes, but at special times of the year when the earth cuts through the path of meteoric swarms they are particularly numerous and appear to come from one general location in the sky. There are a number of annual meteor swarms met by the earth, most famous of which are the Leonids on November 14 and the Perseids on August 12, so named because the meteors appear to come from the constellations after which the swarms are named.

The display expected from comet 1930d is an extra heavenly meteoric exhibition and that is why astronomers are particularly interested in it.

The radiant or the point in the sky from which the June meteors appear to diverge or radiate will be nearly overhead high in the eastern sky early in the evening.

Both Prof. Charles P. Olivier of the Flower Observatory, University of Pennsylvania, and Dr. Harlow Shapley, director of the Harvard College Observatory, urge amateurs to record the numbers of meteors seen each hour during the time of their observations. Those who are experienced with the use of star charts should record the path of each bright meteor among the stars. The duration of flight should be timed or estimated. In the event that bright meteors appear in large numbers an effort should be made to photograph the meteor tracks.

Reports of observations should be sent to Prof. Olivier at the University of Pennsylvania who will utilize them in connection with other reports received from members of the American Meteor Society which has as its special objective the observation of meteors.

Comet 1930d is now eighth magnitude and it is not expected to become visible to the naked eye as seemed likely a few weeks ago when its path was first computed, observations by Prof. G. Van Biesbroeck of Yerkes Observatory indicate.

THE photograph of comet 1930d (Schwassmann-Wachmann comet) on the cover of the SCIENCE NEWS-LETTER this week was made by a 20-minute exposure with the two-foot reflecting telescope of Yerkes Observatory operated by Prof. G. Van Biesbroeck. The comet has two tails visible visually although but faintly recorded by the photograph. The main tail is opposite the sun and extends 25 seconds of distance on the plate, a length that may be judged by the fact that the photograph on the cover is 20 seconds wide. A shorter tail, 20 seconds long, makes an apparent angle of 20 degrees with the direction of the sun.

WHILE weather in May and early June may be warm and summery, summer must delay its official entry until the sun gets in its proper position and enters the sign of Cancer. This astronomical milepost is passed this year on Saturday, June 21, at 10:54 p. m. Eastern Standard Time. Then the sun reaches its farthest north position of the year. At noon that day, at a point on the tropic of cancer, the sun is directly overhead. At such places a curious effect is observed, in that vertical posts or poles cast no shadows, an effect that some of the ancient peoples in Mexico used to time one of their important religious festivals. They referred to it as "the sun god descending to earth."

We of countries farther north than the tropic of cancer never observe the sun god thus "coming to earth." We do, however, at that time have the longest period of sunshine of the year. "What is so rare as a day in June," sang the poet, but on the 21st we will have over fifty per cent. more daylight than we will have on December 22, when the year's shortest

day will arrive. On the longest day the sun, at latitude 40 degrees north, will rise at 4:31 a. m., and will set at 7:32 p. m., eastern standard time. (For daylight saving time, it would rise at 5:31 and set at 8:32.) There are thus more than 15 hours of daylight on the day of the summer solstice.

These figures refer to the actual setting of the sun itself. Of course, twilight continues for several hours after sunset, and begins several hours before sunrise. This is an effect of the earth's atmosphere. While the sun is below the horizon for a person on the surface of the earth, the air above him may still be illuminated. If we lived on an airless planet—Mercury, for example—this would not happen. Darkness would come immediately at sunset, and the day would come exactly at sunrise. As it is, with evening twilight lasting at the time of the solstice until 9:35 p. m., as the astronomer reckons it, and morning twilight beginning at 2:27 a. m., there are only about 4 hours and 52 minutes of real darkness on the night of the 21st of the month.

Farther north, as in the British Isles, darkness does not come at all at this time of year, but morning twilight begins before the evening twilight has ended. And then if one goes still farther north, to North Cape, for instance, the sun does not set at all, and one sees the strange phenomenon of the midnight sun. On the other hand, at 40 degrees south latitude, the parallel of which passes through New Zealand, they are now enjoying their winter months. There, at our summer solstice, they have the winter solstice, and the times of sunrise and sunset are just about the same as they will be for us on the 22d of next December.

Venus shines brightly in the early evening western sky as it did last month and as it will for several months to come.

The June evening sky is occupied by an unusually large number of bright stars. Almost directly overhead is Arcturus, in the constellation of Boötes, the Charioteer. Arcturus is one of the brightest stars in the heavens, for of all the stars that we can see, it is only exceeded in brilliance by Sirius, Vega and Capella. Sirius was visible in the winter sky and it has now departed, but Vega can be seen high in the eastern sky, in the constellation of Lyra, the Lyre. Capella is low in the northwest, hardly visible because it is so near the horizon, though during the past few months it was better placed.

Below to the right of Vega is Altair, in the constellation of Aquila, the eagle. Pollux, one of the two twins, Gemini, is low in the northwest not far from Capella. Spica, in Virgo, the Virgin, is in the southwest, while to the west, at the end of the handle of the "sickle" in Leo, the lion, is Regulus. The ruddy Antares, in Scorpius, is in the southern sky. The "Northern Cross" in Cygnus, the Swan, is in the eastern sky, with the cross lying on its side, and with the bright Deneb at the northern end.

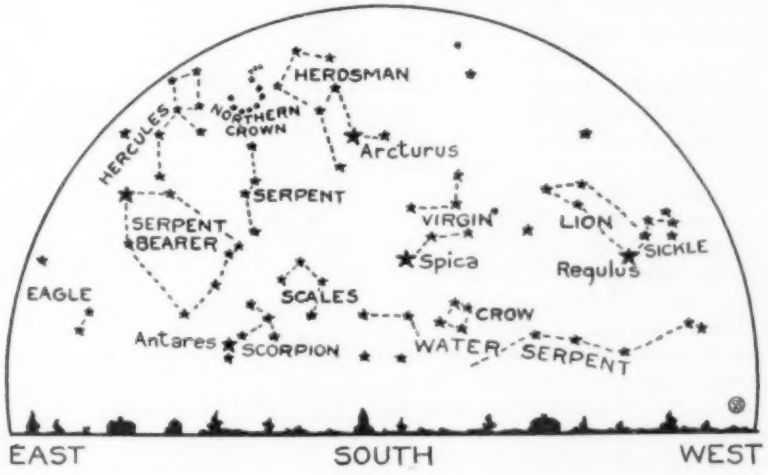
Science News-Letter, June 7, 1930

Mirror

THE 69-inch mirror of the new Perkins Observatory telescope has reached the polishing stage and is now having its surface given its final shape. It is the largest piece of optical glass made in the United States and when completed will be placed in service at Ohio Wesleyan University, Delaware, Ohio. It will then be the third largest reflecting telescope in the world.

Astronomy

Science News-Letter, June 7, 1930



NATURE RAMBLINGS

By Frank Thone

Wrens

WHOEVER has had the foresight to put up a wren house probably has tenants by now, with Mistress Jenny scolding at cats, fighting sparrows and in general comporting herself like the competent little domestic shrew that she is. Her husband, about the most henpecked of male birds, is nevertheless of a cheerful disposition, and manages to get in a good deal of really melodious singing in the intervals between fits of domestic worries.

Men and wrens have probably shared habitations from the very earliest cave-dwelling days, for the house wren is a cave wren where there are no houses. Its Greco-Latin scientific name is a recognition of its cave-dwelling habits: *Troglodytes*—a title, it will be recalled, bestowed also upon cave-dwelling men.

The wren's long bill, its inquisitive habits, and its nervous, incessant activity, all fit it admirably for its great trade of insect-hunter. More than almost any other bird, the wren is carnivorous, only about two per cent. of its food normally consisting of vegetable matter. Thus the wren is not only a close neighbor but a good friend and ally of man.

If one wants bird neighbors, wrens are easier tenants to secure than any birds except the undesired sparrows. They will move into any kind of a bird house; even a tin can with a hole in the end furnishes a wren family a suitable apartment. Only the hole should be small. The proper diameter is one inch, or the size of a twenty-five cent piece. This prevents larger robber birds, especially sparrows, from entering, and is quite big enough for the diminutive body of the wren to slip through.

Science News-Letter, June 7, 1930

No Typhoid Deaths in 5 Big Cities

Public Health

Modern Precautions Have Brought New Health Record

OF 81 cities in the United States with over 100,000 population, five had no deaths from typhoid fever during the past year, the American Medical Association has just reported as a result of its annual survey. The five cities were Duluth, Minn., Hartford, Conn., New Bedford, Mass., Reading, Pa., and Spokane, Wash. Of these Duluth is the only one having had a clean slate the year before.

Cities in the east north-central states, which include Ohio, Indiana, Michigan, Illinois and Wisconsin, had for the second time in five years the lowest death rate for typhoid fever of any group in the country. The three largest cities of this group, Chicago, Detroit and Cleveland, all reported rates under one death per hundred thousand of population.

"Probably in few city groups anywhere with a population as large and heterogeneous as represented here has so low a typhoid rate ever been reported," stated the report.

Higher death rates from typhoid are reported from the southern cities, but notable progress in reducing the high rate is evident over several years. Atlanta, Memphis, Birmingham, Tulsa, Fort Worth, Houston and San Antonio have made big strides in reducing typhoid deaths.

Their progress is largely due to persistent efforts toward safeguarding the milk and water supplies and controlling other factors responsible for the development of the disease. Their experience should be encouraging to other southern cities, particularly as it shows that a warm climate is not an insurmountable barrier to reduction in the death rate from typhoid fever.

Typhoid is spread very largely through contaminated water, milk or other food. Flies carry the disease and for this reason screens are an important factor in its control, as is adequate sanitation.

Honor Roll

Cities having fewer than one death per hundred thousand from typhoid

Duluth	0.0
Hartford	0.0
New Bedford	0.0
Reading	0.0
Spokane	0.0
Jersey City	0.3
Toledo	0.3
Milwaukee	0.4
Omaha	0.4
Cleveland	0.5
Norfolk	0.5
Syracuse	0.5
Bridgeport	0.6
Chicago	0.6
Grand Rapids	0.6
Minneapolis	0.6
Newark	0.6
Rochester, N. Y.	0.6
Erie	0.7
Fall River	0.7
Jacksonville	0.7
Philadelphia	0.7
Salt Lake City	0.7
Springfield, Mass.	0.7
Canton	0.8
Wilmington	0.8
Detroit	0.9
Utica	0.9

TELEGRAPHIC reports received at the U. S. Public Health Service show an increase in the number of cases of typhoid fever throughout the country during recent weeks. The figures are about parallel with those reported last year at this time, and the rise is merely the expected seasonal increase. For the entire country 260 cases were reported for the week of May 18.

Typhoid is no longer the universal menace that it was in the days before sanitary control of water, milk and other food supplies, before carriers were recognized and held under surveillance of health authorities, and before "swat the fly" had become a national household phrase and activity.

However, enough cases and deaths from this cause are reported each year to make health officers renew their efforts and warnings at this season. Typhoid has been called the vacation disease because it so often was the unhappy successor of the summer holiday trip.

The disease may be guarded against by investigating the food, milk and water supply of the vacation site beforehand. In case of doubt, milk and water should be boiled and no raw food eaten.

Another protective measure that is gaining in popularity is the protective inoculation against the disease. These inoculations were used very successfully in the army during the World War. The inoculations are given at intervals of a week until three have been administered.

Typhoid is a germ disease. The organisms causing it may be spread in a number of ways. They are excreted by persons suffering from the disease and also by well persons, known as "carriers," who harbor the germs in their bodies. From either of these sources drinking water, milk, ice cream, oysters, and other foods may become contaminated. Flies also may carry the germs, and food must be protected from them.

The efforts of health officers and sanitary authorities have reduced the typhoid hazard in larger cities materially, but in some cities and many rural areas the danger still exists. Many states now inspect and mark roadside water supplies for the protection of motorists.

A specific cure for the disease has not yet been developed. It is more fatal to older people. It develops about two weeks after infection and lasts for about four weeks. The onset is gradual with fever, headache and chills.

Science News-Letter, June 7, 1930

TEN CACTI

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JAMES ALLAN

Mountain Park New Mexico

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Ashes Found With Sloth Remains

Archæology

Discovery in Gypsum Cave Thought Ancient Camp Fire

By M. R. Harrington
Curator, The Southwest Museum

AN epoch-making discovery has just been made in Gypsum Cave near Las Vegas, Nevada, which establishes beyond question the interesting and important fact that man lived in America before the strange animals typical of the Pleistocene Age had become extinct. The find consisted of charcoal and ashes, relics of an ancient camp fire, nearly 8 feet below the surface and directly beneath a solid unbroken layer of manure left by the extinct ground sloth Nothrotherium, and preserved by the dryness of the cave. It is the crowning discovery of nearly five months of intensive work in this cavern on the part of a joint expedition sent out by the Southwest Museum of Los Angeles and the California Institute of Technology of Pasadena. The actual discovery was made by E. G. Ward, expedition assistant.

According to Dr. Chester Stock, of the California Institute of Technology, who is in frequent consultation, the discovery of this charcoal beneath the sloth layer apparently substantiates the finds previously made in other parts of the cave indicating association of man and the sloth. These consisted of flint dart-points, fragments of wooden dart-shafts, burnt sticks, and pieces of cane torches found in or below layers of sloth manure, but nearer to the surface, and consequently not so convincing.

Bertha Pallan, expedition secretary, showing difference in size of early type (small) and late type atlatl darts from Gypsum Cave.

Drawing by M. R. Harrington, indicating where the fire remains were found.

The importance of the present discovery lies in the fact that, on account of its position near the cave entrance, a number of strata of dust, rocks and the like, accumulated above it to such a depth that there is no chance of the charcoal having worked down from the surface to the point where it was found.

The great age of the camp fire can be seen clearly from the fact that relics of the Basket-Makers, who lived about 1500 B. C., were found in the first or surface layer not more than two feet deep, while the camp fire was deeply buried in the fifth layer down, nearly 8 feet from the surface.

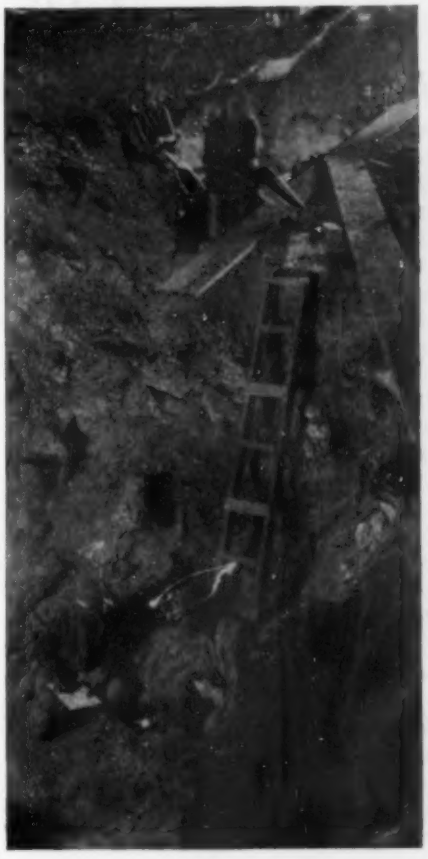
That the layer of manure was left by the ground sloths and not by other creatures is determined not only by the fact that ground sloth was the only animal of the Pleistocene period that could have produced manure of this sort, but also from the finding, imbedded in it, of a large number of bones, huge claws with horny sheaths still intact, and even masses of the long, coarse, reddish and yellowish hair of this animal.

That the sloth was not the only Pleistocene animal associated with man in Gypsum Cave is shown, according to James E. Thurston, Expedition Paleontologist, by the finding of bones of two species of extinct American horse in the same layers and, most interesting of all, of a very small camel or llama with gazelle-like slender limbs, a species which has apparently not been found before.

On account of the heat in southern Nevada the expedition is about to shut down its work for the summer, but the foreman, Willis I. Evans, will be left in charge and will show the cave to anyone interested. The find of charcoal, still in position, will be shown to properly accredited investigators representing scientific institutions.

Science News-Letter, June 7, 1930

M. R. Harrington, expedition leader, and E. G. Ward, workman who made discovery, examining fire remains.



Vacuum Increases Capacity of Battery

Electro-Chemistry

Chemists Told How To Duplicate Nature's Tints

IF all storage batteries were put in vacuums, the world would be able to store about one-tenth more electricity than it does now.

The capacity of a storage battery is increased 9.2 per cent. when discharging in an atmosphere where the pressure is 10 millimeters of mercury, about two-tenths of a pound per square inch, Prof. Sakae Makio, of the Japanese Ministry of Communications Electrochemical Laboratory, reported to the American Electrochemical Society at its annual meeting last week. Atmospheric pressure is roughly between 14 and 15 pounds per square inch.

When put back in atmospheric pressure a battery will not return to normal operation until it has been charged and discharged for an hour and a half. Previous experiments show that increased pressure reduces a battery's capacity very slightly.

NATURE'S supply of "bloodstone" and natural iron oxide, which form the source of turkey red shades in paints and decorations, is being rapidly exhausted. Pigments of the darker shades can be made artificially by heating a copper ore to a powder. The lighter tints are much harder to attain.

But they can be produced by electrolysis, Walter H. Bruckner, of Columbia University, reported. Direct current passing from pure iron terminals through a sodium sulphate solution will cause iron hydroxide to be precipitated. The hydroxide can be gotten in fine-grained pure form and makes an excellent pigment for light red tints, he said.

BY forever pulling off the metal sheath as it is deposited out of solution on an iron alloy core, Prof. Jean Billiter of the University of Vienna makes seamless and endless tubing of copper, zinc and iron.

But this, his first method, was too slow, he said; only a few inches of tubing could be made in an hour. So a faster method was devised.

A lead core is now run continuously through the solution and metal is deposited on it as the core moves. Then the soft lead is melted away and the copper, zinc or iron tubing left. A tube five yards long and nearly one-tenth of an inch thick can be made in 24 hours.

THE curious metal, indium, only about a pound of which has been isolated from its ores, is produced 99.9 per cent. pure by electrolysis.

Although it is very rare and what little there is of it brings for experimental purposes about six times as much as platinum, scientists are hopeful that a use will be found for its peculiar properties. It melts at a much lower temperature than tin and is very soft and ductile.

Electrolysis separates it from the residue of such ores as iron, aluminum, titanium and silicon, where it is found in small quantities, L. R. Westbrook, of Cleveland, reported.

Science News-Letter, June 7, 1930

The Past Brought Alive

Paleontology

AS we can look into the heavens at night and see simultaneously light only a few seconds old, reflected from the moon, light several years old, shining from relatively nearby stars, and light as old as the dinosaurs glowing faintly from the nebulae, so also can we see a telescoping of time in the fossils exposed in various strata of the rocks. Thus is the past brought alive to us, welded into a conscious continuum with the present, and made a basis for such control of the future as man is able to exercise.

This was the keynote of a radio address given by Dr. John C. Merriam, president of the Carnegie Institute of Washington, over the Columbia Broadcasting System, under the auspices of Science Service.

Dr. Merriam spoke in part as follows:

"In these vast wildernesses of the past we may explore with a sense of reality like that in the wild and unknown regions of the present. The shifting continents of ancient time—the changing seas—world after world of strange forests and creatures that exceed the weirdness of fiction pass under the adventurer's eye. So fully aware is one of what they represent that they are no longer dead, but come into new life through a resurrection made real by the interpretation of science. The so-called fossils are no longer the deadest things in the world, but take on life and meaning. In the truest sense their value may be much greater than that of an intelligent living human being whose life is so self-centered that it serves only to absorb and not to give.

"These elements of the world from past time illustrate the interlocking of events so that all appear as one story. They also interpret in an extraordinary way the modes of operation in nature, which we call laws operating in a similar manner throughout time and space.

"It is this continuity of operation that I wish to emphasize, as indicating that the past, if once conceived as reality, becomes to us the basis upon which the present and the future must be built.

"Some years ago a man whose conduct had been investigated, because he did not agree with others as to how public affairs ought to be conducted, was reported to say that, considering his recent experiences, he would be happy if he could be 'as sure of his past as he was of what he would do in the future.' In this instance, the future was improved by study of the past. So with reference to the story of life as a whole. It is the longer reach of acquaintance with history that gives us the best guide for the future. We may not change the past, but we may build upon it. Neither may we wholly determine the future, but we may mold it according to what we learn from the past. It is all one connected series of events through space and time. Those are wisest who build upon the longest experience extended into the farthest reaches of the future."

Science News-Letter, June 7, 1930

"Maikop Treasure" Given to Museum

Archæology

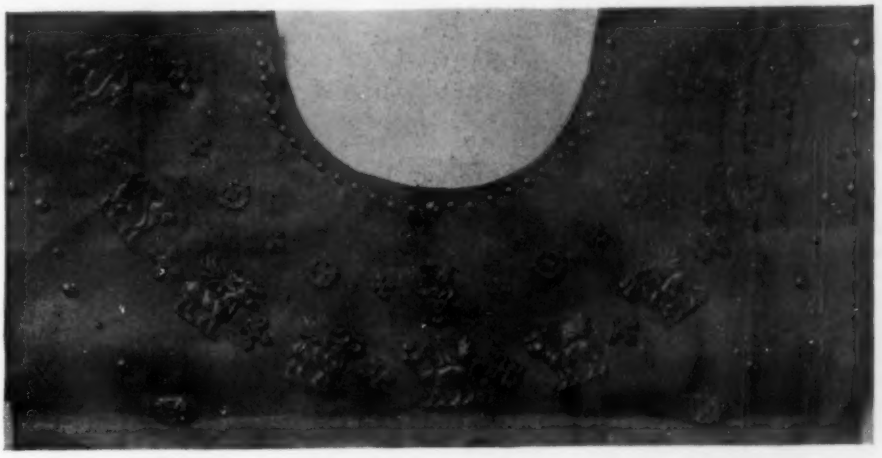
Pennsylvania Receives Beautiful Scythian Relics

THE "Maikop treasure," a collection of rare antiquities which once belonged to the mysterious Scythians of Russia, has been presented to the Museum of the University of Pennsylvania, Horace H. J. Jayne, director, has announced. The collection is a gift from W. Hinckle Smith, a vice-president of the Museum.

The relics, which were originally taken from an ancient grave mound near Maikop, in southern Russia, include a wooden casket studded with mythical animals, a tunic made of cloth of silver adorned with reindeer and griffins stamped out of gold, golden bracelets and diadems, and other articles of gold and bronze. There are also harness trappings, bead necklaces made of glass and various stones, a terra cotta bowl, and a fragment of a Greek vase of red.

This vase fragment is of particular importance, for it was the clue which enabled archaeologists to date the tomb as belonging to the sixth century B. C.

"Comparatively little is known about the Scythians," Mr. Jayne said, "although from about 1000 B. C., when great migratory waves of early civilization swept from northern China over Asia to Europe, the Scythians overran the southern part of Russia, and established themselves on the Russian steppes."



Yoke of silver-cloth tunic trimmed with gold figures, from the Maikop treasure

Their origin is still unknown, though it is probable that they came from central Asia, he added. They were wanderers, but they established a trade route with Greece and had contacts with Persia, as the designs of their ornaments show. By the second century B. C. their power had waned, and they were amalgamated into the Sarmatian tribes which had appeared in southern Russia, probably coming from Persia.

The collection presented to the museum also includes relics from the Sarmatian period, such as mirrors and bronze ornaments, necklaces, and a silver bowl.

Science News-Letter, June 7, 1930

The Mutt Dog—*Continued*

long association with men, and due to the fact that their brains are sympathetic to the human brain, can be taught to associate actions with words, but this is not reasoning.

For instance, Dr. Lentz conducted a series of experiments upon a collie which would fetch his slippers when commanded to do so. He found that no matter how the command was worded, the dog associated the word slipper and the inflection of the voice, with the act of fetching them.

Reasoning requires a higher degree of intelligence, however. The Doctor relates an incident of a dog occupying the most comfortable chair on a cool porch, and the only person about being an old lady who feared the dog. Wishing the chair for herself the lady went into the house and imitated a cat calling. The dog leaped from the chair to investigate, and the woman took possession of the vacated seat. Finding himself fooled, the dog went around to the corner of the back gate and barked violently. The lady naturally went to see what the trouble might be, and immediately the dog sprang back into his chair. Dr. Lentz feels that this is an example of pure reasoning in a dog.

The dog will ever be man's best friend among the animals, and his loyalty and affection, as well as his intelligence, are things to be developed, rather than disregarded for mere fashions.

Dr. Lentz himself has owned as many as thirteen dogs at one time, and none could ever claim a pedigreed ancestry. Yet every one of these dogs has been extraordinarily alert and clever. After seeing the work of little fellows like Beaucoup, Dr. Lentz believes that the ideal pet for the small boy is the little "mut," found wandering about the streets of any town, rather than the nervous, inbred, and expensive creatures found on show benches.

Science News-Letter, June 7, 1930

Submarine Song

WHEN the bullfrog calls errumph in his watery pool he is not intent upon filling the air with beautiful sound but he is engaged in the serious business of communicating with a friend in the same pool. So explained Prof. John Tait of McGill University, Montreal, when he told the Royal Society of Canada the meaning of the croaking of frogs.

With a hydrophone device such as used for detecting submarines during the war, he listened to under-water vibrations that are created in the water when the noisy frog shifts air from his lungs to his mouth and air sacs and back again. When he held his finger in water being disturbed by the croaking he could actually feel the vibrations. Most of the signal that carries the call of the frog is under water, Prof. Tait explained, and the noise we hear is mere by-product that escapes to the air when part of the frog is out of water.

Zoology

Science News-Letter, June 7, 1930

FIRST GLANCES AT NEW BOOKS

ATOMS, MOLECULES AND QUANTA—Arthur Edward Ruark and Harold Clayton Urey—*McGraw-Hill*, 790 p., $7. To those who have been unable to keep up with the rapid march of physics this extensive study of atomic and molecular structure will prove useful indeed. With relatively simple exposition of the new ideas in physics there is combined detailed and up-to-date accounts of the latest theories and the most important experimental researches in the field.

Physics

Science News-Letter, June 7, 1930

THE NORMAL DIET—W. D. Sansun—*Mosby*, 134 p., $1.50. The third edition of a popular handbook designed for physicians and patients. The arrangement is slightly different in this edition and there is additional material in the chapter giving sample menus for the normal diet.

Hygiene

Science News-Letter, June 7, 1930

FACTS AND FIGURES ABOUT STEEL CONSTRUCTION—*American Institute of Steel Construction*, 126 p., 50c. An encyclopedia of interesting information about steel and its use in construction.

Engineering

Science News-Letter, June 7, 1930

THE USE OF THE MICROSCOPE—John Belling—*McGraw-Hill*, 315 p., $4. This handbook should be very useful to all who use a microscope, whether in routine laboratory procedures or in research work. Each part of the microscope is discussed. Practical directions are given for the care and use of the instrument, for photography and drawings, and for the preparation of microscopic objects. There are a glossary and a bibliography also.

Microscopy

Science News-Letter, June 7, 1930

MASTERING A METROPOLIS—R. L. Duffus—*Harpers*, 292 p., $3. A popular presentation of the results of the million dollar scientific study that will make New York of 1965, with its greatly increased population, a region less congested and more beautiful than it is today. Many features of the planned Greater New York of the future will be found applicable to other metropolitan areas. Every civic-minded person who lives in or near a big city should read this book.

City Planning

Science News-Letter, June 7, 1930

BREAD—Harry Snyder—*Macmillan*, 275 p., $2.50. This is the story of Prof. Harry Snyder, a man who added much to the world's knowledge of agricultural chemistry and in so doing performed a great public service—and found romance. Several of his many magazine articles are included. They entertainingly tell the chemistry of wheat, flour, and bread.

Chemistry

Science News-Letter, June 7, 1930

TEPOZTLAN—Robert Redfield—*Univ. of Chicago Press*, 247 p., $3. The author and his wife have done for a typical Mexican village community what the Lynds did for an American community in Middletown. They chose a peripheral rather than a central location, to be removed from the urban shadow of Mexico City, and lived among the people of Tepoztlán for a year. Their point of view therefore is that of scientifically trained observers living as close neighbors and getting as far into their economic, social and religious life as it is possible for aliens to penetrate. Persevering studies by this method will do much toward the solution of immigration and other border problems, if only our lawmakers will pay some attention to them instead of relying on their own snap judgments or listening to the prejudices of their meagerly informed constituents.

Ethnology

Science News-Letter, June 7, 1930

THE PRE-SCHOOL CHILD AND HIS POSTURE—Frank Howard Richardson and Winifred Johnson Hearn—*Putnam*, 220 p., $2.50. The authors describe the great prevalence of faulty posture in pre-school children, advance a few theories regarding it, and, most important of all, describe exercises or games which children will like as well as benefit from. The book is well illustrated.

Hygiene

Science News-Letter, June 7, 1930

MERCK'S INDEX—*Merck and Co.*, 585 p., $5 ($2.50 to members of medical, chemical, pharmaceutical and allied professions). The fourth, carefully revised edition of an extremely useful encyclopedia of drugs and chemicals. This is the first edition since before the World War. The scope of the book is not restricted to Merck products.

Chemistry

Science News-Letter, June 7, 1930

THE NEW EVOLUTION: ZOOGENESIS—Austin H. Clark—*Williams and Wilkins*, 297 p., $3. Mr. Clark here sets forth, with greater elaboration and illustration, the thesis which he has previously proposed in scientific periodicals. Basically it is that the critical characters that differentiate the animal kingdom into phyla are relatively few in number; that they manifested themselves early in evolutionary history, and comparatively suddenly as well; and that in their long subsequent independent deployment the phyla have further differentiated their subdivisions by analogous process, the saltations becoming less and less pronounced in the course of time and with the development of the finer branches on the systematic tree. Much of Mr. Clark's doctrine is not at all orthodox, but he defends it with great resourcefulness and skill.

Evolution

Science News-Letter, June 7, 1930

THE BEHAVIOR OF YOUNG CHILDREN, VOLUME II, DRESSING—TOILET WASHING—Ethel B. Waring and Marguerite Wilker—*Scribner*, 151 p., $1. This "Series on Childhood Education" will eventually contain four volumes. Mothers will like the way in which they can apply the practical information in this little book to their own problems. The authors use the interesting devices of telling one brief incident after another and pointing each with a question, and also of giving brief quotations from various specialists on the subjects they wish to emphasize.

Education

Science News-Letter, June 7, 1930

FINGERFINS—Wilfred S. Bronson—*Macmillan*, 52 p., $2. The story of the adventures of a quaint little fish that lived among the drifting gulfweed, most aptly yet most accurately told, in words and pictures that middle-sized children (and grown-up ones, too) will like. Of the many good nature books of this genus that have appeared during the past few years, this is easily one of the very best. The author-artist has already established himself as one who can on occasion look at the world from a fish's point of view, and in many happily conceived sketches in this volume he fairly surpasses himself.

Nature Study

Science News-Letter, June 7, 1930